

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-7 (cancelled)

8. (new) Waveguide, which is part of an integrated optical circuit, the waveguide being arranged onto a planar substrate and having a core section propagating light to a certain direction, the direction of propagation, **characterised** in that the waveguide is a conversion waveguide (60) between a ridge-type waveguide (61) and a strip waveguide (62), in which conversion waveguide the core section is made of the one and same material so that the cross-section of the core section transverse to the direction of propagation (z) of light is two-step (6; 6^{1a} , 6^{2a} ; 6^{1b} , 6^{2b}) from both edges (60a, 60b), and in which conversion waveguide there are two layers (60^1 , 60^2) of different widths (l_{60a} , l_{60b}), the height (h_{60a}) of the first layer (60^1) being equal to the height of the ridge (61^1) of the ridge-type waveguide (61), and the height (h_{60b}) of the second layer (60^2) being equal to the height of the base part (61^2) of the ridge-type waveguide (61), and in which the sum of the heights (h_{60a} , h_{60b}) of the layers (60^1 , 60^2) is equal to the height of the strip waveguide (62), the widths of the two layers (60^1 , 60^2) being arranged to change uniformly between the waveguides to be connected for fitting them together laterally.

9. (new) Waveguide according to claim 8, **characterised** in that the waveguide (60) is made of semiconductor material, especially silicon.

10. (new) Waveguide according to claim 9, **characterised** in that the waveguide (60) is made onto a SOI substrate.

11. (new) Waveguide according to claim 8, **characterised** in that the widths (l_{60a} , l_{60b}) of the layers (60^1 , 60^2) of the waveguide (60) are arranged to change linearly between the ridge of the ridge-type waveguide (61) and the rectangular core section of the strip waveguide (62) of different widths for connecting them together with the help of the waveguide (60).

12. (new) Method for manufacturing an integrated optical circuit onto a substrate, **characterised** in that the waveguide is a conversion waveguide (60), which is manufactured between the ridge-type waveguide (61) and the strip waveguide (62) onto such a substrate (7), on which there is a light-propagating core section (7c), in which method the core layer (7c) is controllably thinned in two stages for forming two different steps on both sides of the conversion waveguide so that different process patterns are utilised in both thinning stages, the edges of which determine the location of the edges of the steps of the waveguide on the substrate, so that the result obtained is a waveguide structure, which is two-step (6; 6^{1a} , 6^{2a} ; 6^{1b} , 6^{2b}) from both edges (60a, 60b) transverse to the direction of propagation of light, in which the conversion waveguide (60) is provided with two layers (60^1 , 60^2) of different widths (l_{60a} , l_{60b}) so that the height (h_{60a}) of the first layer (60^1) is arranged to be equal to the height of the ridge (61^1) of the ridge-type waveguide (61), and the height (h_{60b}) of the second layer (60^2) is arranged to be equal to the height of the base part (61^2) of the ridge-type waveguide (61), and in which the sum of the heights (h_{60a} , h_{60b}) of the layers (60^1 , 60^2) is arranged to be equal to the height of the strip waveguide (62), and the widths of the two layers (60₁, 60₂) are arranged to change uniformly between the waveguides (61, 62) to be connected for fitting them together in the lateral direction.

13. (new) Method according to claim 12, **characterised** in that the waveguide (5) is manufactured onto a suitable finished substrate (7), such as a SOI wafer or similar.

14. (new) Method according to claim 12, **characterised** in that one common hard mask layer (9; 9¹) is used in it for providing at least two different process patterns to the core layer (7c) of the substrate.

15. (new) Method according to claim 13, **characterised** in that one common hard mask layer (9; 9¹) is used in it for providing at least two different process patterns to the core layer (7c) of the substrate.